

ABSTRACT

This invention provides a polarization conversion light pipe device suited for LCD- or LCoS-based projection applications. The polarization conversion light pipe device encompasses a light tunnel defined by four side reflection mirrors with a rectangular cross section. The light tunnel has a light entrance face at one end and a light exit face at the other end. A front reflection mirror having an aperture thereon is mounted on the light entrance face. A retardation plate for rotating the direction of an electric field of a polarized light beam is situated in the light tunnel. A polarization beam splitter module is situated between the exit face of the light tunnel and the retardation plate. The polarization beam splitter module has a reflective polarization beam splitting surface that is substantially 45 degree-inclined with respect to one of the side reflection mirrors.